

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

WHAT IS CLAIMED IS:

(1) A method for making a circuit board assembly comprising the steps of:

providing a core member having a first surface and a
5 second surface;

forming an aperture within said core member, said aperture having an interior surface;

attaching an adhesive material to said first and second surfaces and upon said interior surface;

10 forming an aperture within a portion of said adhesive material; and

attaching an electrically conductive member to said adhesive material, thereby forming a circuit board assembly.

15 (2) The method of claim 1 further comprising the step of causing said electrically conductive member to extend over said aperture which is formed within said core member.

(3) The method of claim 1 further comprising the step of
20 causing said aperture within said core member to communicate with said aperture formed within said adhesive material.

(4) The method of claim 3 further comprising the step of placing a dielectric material upon said interior surface.

25 (5) The method of claim 2 further comprising the steps of:

attaching said electrically conductive member to a second member; and

selectively removing portions of said second member.

(6) The method of claim 5 wherein said removal of said portions of said second member extends said aperture which is formed within said core member.

(7) A method for making a circuit board comprising the steps of:

providing a core member having a first surface and a second surface;

forming a first aperture, having a first interior surface within said core member and a second aperture, having a second interior surface, within said core member;

selectively applying a dielectric material to said first surface and said second surface of said core member while exposing a first and a second surface of said core member;

selectively applying said dielectric material to said first and second surfaces, thereby forming a first pre-circuit assembly having a first surface and a second surface;

providing a first and a second layer of adhesive materials;

forming a first and a second aperture within said second layer of adhesive material;

selectively applying said first layer of said adhesive material to said first surface of said first pre-circuit assembly, effective to extend said first aperture and applying said second layer of said adhesive material upon said second surface of said first pre-circuit assembly, thereby extending said second aperture and forming a second pre-circuit assembly having a first and a second surface;

attaching a first electrically conductive member to said first surface of said second pre-circuit assembly and attaching a second electrically conductive member to said second surface of said second pre-circuit assembly;

removing certain selective portions of said first and second electrically conductive members, effective to extend said first and second apertures and to form a third and a fourth aperture within said second pre-circuit assembly;

providing a third pre-circuit assembly;

selectively applying said adhesive material to said second pre-circuit assembly;

attaching said third pre-circuit assembly to said adhesive material resident upon said second pre-circuit assembly; and

selectively removing portions of said third pre-circuit assembly upon said second pre-circuit assembly, effective to cause a first portion of said third pre-

circuit assembly to overlay said first aperture and to cause said third pre-circuit assembly to overlay said first aperture and to cause a second portion of said third pre-circuit assembly to overlay said second aperture, thereby forming a circuit board assembly.

(8) The method of claim 7 wherein said third pre-circuit assembly includes a core member having a first and a second surface, an electrically conductive member being disposed upon said first surface and an electrically conductive member being disposed upon said second surface.

(9) The method of claim 8 wherein said step of removing portions of said third pre-circuit assembly comprises the steps of:

selectively removing certain portions of said core member and of said electrically conductive members disposed upon said first and second surfaces of said third pre-circuit assembly.

(10) The method of claim 7 wherein said core member comprises copper.

(11) The method of claim 7 further comprising the step of:

removing a portion of said first electrically conductive member, effective to cause a first portion of said first electrically conductive member to extend within said third aperture and to cause a second portion

of said first electrically conductive member to extend within said fourth aperture.

(12) The method for making a circuit board assembly of claim 7 wherein a certain electrically conductive solder material is selectively placed within said first, second, third, and fourth apertures.

(13) A method for making a circuit board comprising the steps of:

providing a first electrically conductive member having a first surface and a second surface;

forming a first aperture, a second aperture, and a third aperture within said electrically conductive member;

applying a first layer of adhesive material upon said first surface of said first electrically conductive member and within said first, second, and third apertures;

applying a second layer of adhesive material upon said second surface of said first electrically conductive member and within said first, second, and third apertures, effective to connect to said first layer of adhesive material within said first, second, and third apertures, and said first and second layers of adhesive material cooperatively filling said first, second, and third apertures;

placing a second electrically conductive member upon
said first layer of adhesive material, said second
electrically conductive member having a first and a
second aperture within said second electrically
5 conductive member;

placing a third electrically conductive member upon
said second layer of adhesive material, said third
electrically conductive member having a first and a
second aperture formed within said third electrically
10 conductive member, thereby forming a first pre-circuit
assembly;

forming a first aperture within said first pre-
circuit assembly having a first interior surface, a
second aperture within said first pre-circuit assembly
15 having a second interior surface, and a third aperture
within said first pre-circuit assembly having a third
interior surface;

applying a certain electrically conductive material
upon said first and second interior surfaces within said
20 first pre-circuit assembly and upon certain selective
portions of said second and third electrically conductive
members;

selectively applying a third layer of adhesive
material upon certain portions of said second
25 electrically conductive member and upon certain portions
of said third interior surface within said first pre-

circuit assembly, effective to overlay said first and second apertures within said first pre-circuit assembly and effective to fill said first and second apertures within said second electrically conductive member;

5 selectively applying a fourth layer of adhesive material upon certain portions of said third electrically conductive member and upon certain portions of said third interior surface within said first pre-circuit assembly, effective to overlay said first and second apertures
10 within said first pre-circuit assembly and effective to fill said first and second apertures within said third electrically conductive member;

 selectively applying a second pre-circuit assembly upon said third layer of adhesive material;

15 selectively applying a third pre-circuit assembly upon said fourth layer of adhesive material effective to cover said third aperture within said first pre-circuit assembly; and

 selectively removing certain portions of said second
20 pre-circuit assembly, thereby forming a circuit board assembly.

(14) The method of claim 13 wherein said first, second, and third electrically conductive members comprise copper.

25 (15) The method of claim 13 wherein said second pre-circuit assembly comprises a first core member disposed

between a fourth electrically conductive member and a fifth electrically conductive member.

(16) The method of claim 13 wherein said third pre-circuit assembly comprises a second core member disposed
5 between a sixth electrically conductive member and a seventh electrically conductive member.

(17) A circuit board assembly comprising:

a core electrically conductive member contained
between a first layer of epoxy and a second layer of
10 epoxy;

a first electrically conductive member contained
between a first layer of adhesive and a second layer of
adhesive, said second layer of adhesive connected to said
first layer of epoxy;

15 a second electrically conductive member contained
between a third layer of adhesive material and a fourth
layer of adhesive material, said second layer of adhesive
material connected to said second layer of epoxy;

a first pre-circuit assembly having a first central
20 member contained between a third electrically conductive
member and a fourth electrically conductive member, said
fourth electrically conductive member being attached to
said first layer of adhesive material; and

a second pre-circuit assembly having a second
25 central metal member contained between a fifth
electrically conductive member and a sixth electrically

conductive member, said fifth electrically conductive member being attached to said fourth layer of adhesive material, thereby forming a circuit board assembly, said second pre-circuit assembly cooperating with said fourth
5 layer of said adhesive material and said second electrically conductive member to form at least one stepped aperture within said circuit board assembly.

(18) The electric circuit board of claim 17 further comprising at least one conduit type aperture which is
10 selectively formed within said circuit board.

(19) The electric circuit board of claim 17 further comprising:

said first electrically conductive member having two notch-shaped apertures; and

15 said fourth electrically conductive member selectively protruding into said formed aperture, effective to form a step.

(20) The electric circuit board of claim 17 further comprising:

20 said first and third layers of adhesive material selectively connecting, effective to shield said first electrically conductive member from said formed aperture; and

said fourth electrically conductive member
25 protruding into said formed aperture, effective to form a step.

(21) The circuit board of claim 18 wherein said conduit type aperture is selectively formed through said core electrically conductive member, said first and second layers of epoxy, said first and second layers of adhesive, and said first and second electrically conductive members, said circuit board further comprising:

a second portion of said second adhesive material applied within said aperture, effective to connect said first and second layers of electrically conductive material;

a certain electrically conductive material selectively electroplated to said second portion of said second adhesive and to a portion of said first and second electrically conductive members within said aperture and to a portion of said first and second electrically conductive materials proximate to said aperture, effective to electrically connect said first and said second electrically conductive members to said aperture, thereby forming an electroplated conduit type aperture within said circuit board.

(22) The circuit board of claim 19 wherein said conduit type aperture is selectively formed through said first layer of epoxy material, said first layer of adhesive material and said first electrically conductive member, said circuit board further comprising:

a layer of electrically conductive material which is applied to certain portions of said electrically conductive member, said first layer of epoxy, said first adhesive layer, and said first electrically conductive member exposed within said conduit type aperture, and to certain portions of said first electrically conductive member which are proximate to said conduit type aperture, thereby forming a circuit board assembly having an electroplated conduit type aperture.

10 (23) The electric circuit board of claim 17 further comprising:

said first electrically conductive member protruding into said stepped aperture, thereby forming a step; and

a certain electrically conductive solder material which is applied within said aperture and upon said core electrically conductive member effective to electrically connect said formed step and said core electrically conductive member, thereby forming a circuit board assembly having a soldered stepped aperture.